

SEQUENCE LISTING

<110> Sheen, Jen
 Ausubel, Frederick M.
 Asai, Tsuneaki
 Tena, Guillaume

<120> Master Activators of Pathogen Responsive
 Genes

<130> 00786/397003

<150> PCT/US 02/07650

<151> 2002-03-13

<150> US 60/275,199

<151> 2001-03-12

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<212> PRT

<213> Arabidopsis thaliana

<400> 4

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Val Ser Leu Ala Val Pro Leu Pro Leu Pro Pro Thr Ser Gly Gly Ser
35     40     45
Gly Gly Ser Ser Gly Ser Ala Pro Ser Ser Gly Gly Ser Ala Ser Ser
50     55     60
Thr Asn Thr Asn Ser Ser Ile Glu Ala Lys Asn Tyr Ser Asp Leu Val
65     70     75     80
Arg Gly Asn Arg Ile Gly Ser Gly Ala Gly Gly Thr Val Tyr Lys Val
85     90     95
Ile His Arg Pro Ser Ser Arg Leu Tyr Ala Leu Lys Val Ile Tyr Gly
100    105    110
Asn His Glu Glu Thr Val Arg Arg Gln Ile Cys Arg Glu Ile Glu Ile
115    120    125
Leu Arg Asp Val Asn His Pro Asn Val Val Lys Cys His Glu Met Phe
130    135    140
Asp Gln Asn Gly Glu Ile Gln Val Leu Leu Glu Phe Met Asp Lys Gly
145    150    155    160
Ser Leu Glu Gly Ala His Val Trp Lys Glu Gln Gln Leu Ala Asp Leu
165    170    175
Ser Arg Gln Ile Leu Ser Gly Leu Ala Tyr Leu His Ser Arg His Ile
180    185    190
Val His Arg Asp Ile Lys Pro Ser Asn Leu Leu Ile Asn Ser Ala Lys
195    200    205
Asn Val Lys Ile Ala Asp Phe Gly Val Ser Arg Ile Leu Ala Gln Thr
210    215    220
Met Asp Pro Cys Asn Ser Ser Val Gly Thr Ile Ala Tyr Met Ser Pro
225    230    235    240
Glu Arg Ile Asn Thr Asp Leu Asn Gln Gly Lys Tyr Asp Gly Tyr Ala
245    250    255
Gly Asp Ile Trp Ser Leu Gly Val Ser Ile Leu Glu Phe Tyr Leu Gly
260    265    270
Arg Phe Pro Phe Pro Val Ser Arg Gln Gly Asp Trp Ala Ser Leu Met
275    280    285
Cys Ala Ile Cys Met Ser Gln Pro Pro Glu Ala Pro Ala Thr Ala Ser
290    295    300

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Pro Glu Phe Arg His Phe Ile Ser Cys Cys Leu Gln Arg Glu Pro Gly
 305 310 315 320
 Lys Arg Arg Ser Ala Met Gln Leu Leu Gln His Pro Phe Ile Leu Arg
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 20 25 30
 Val Ser Leu Ala Val Pro Leu Pro Leu Pro Pro Thr Ser Gly Gly Ser
 35 40 45
 Gly Gly Ser Ser Gly Ser Ala Pro Ser Ser Gly Gly Ser Ala Ser Ser

50	55	60
Thr Asn Thr Asn Ser Ser Ile Glu Ala Lys Asn Tyr Ser Asp Leu Val		
65	70	75
Arg Gly Asn Arg Ile Gly Ser Gly Ala Gly Thr Val Tyr Lys Val		80
	85	90
Ile His Arg Pro Ser Ser Arg Leu Tyr Ala Leu Lys Val Ile Tyr Gly		95
	100	105
Asn His Glu Glu Thr Val Arg Arg Gln Ile Cys Arg Glu Ile Glu Ile		110
	115	120
Leu Arg Asp Val Asn His Pro Asn Val Val Lys Cys His Glu Met Phe		125
	130	135
Asp Gln Asn Gly Glu Ile Gln Val Leu Leu Glu Phe Met Asp Lys Gly		140
	145	150
Ser Leu Glu Gly Ala His Val Trp Lys Glu Gln Gln Leu Ala Asp Leu		155
	165	170
Ser Arg Gln Ile Leu Ser Gly Leu Ala Tyr Leu His Ser Arg His Ile		175
	180	185
Val His Arg Asp Ile Lys Pro Ser Asn Leu Leu Ile Asn Ser Ala Lys		190
	195	200
Asn Val Lys Ile Ala Asp Phe Gly Val Ser Arg Ile Leu Ala Gln Asp		205
	210	215
Met Asp Pro Cys Asn Glu Ser Val Gly Thr Ile Ala Tyr Met Ser Pro		220
	225	230
Glu Arg Ile Asn Thr Asp Leu Asn Gln Gly Lys Tyr Asp Gly Tyr Ala		235
	245	250
Gly Asp Ile Trp Ser Leu Gly Val Ser Ile Leu Glu Phe Tyr Leu Gly		255
	260	265
Arg Phe Pro Phe Pro Val Ser Arg Gln Gly Asp Trp Ala Ser Leu Met		270
	275	280
Cys Ala Ile Cys Met Ser Gln Pro Pro Glu Ala Pro Ala Thr Ala Ser		285
	290	295
Pro Glu Phe Arg His Phe Ile Ser Cys Cys Leu Gln Arg Glu Pro Gly		300
	305	310
Lys Arg Arg Ser Ala Met Gln Leu Leu Gln His Pro Phe Ile Leu Arg		315
	325	330
Ala Ser Pro Ser Gln Asn Arg Ser Pro Gln Asn Leu His Gln Leu Leu		335
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<213> Arabidopsis thaliana

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ggaggaacgg	tttacaagt	aatccacact	ccgacgtcac	gtcctttcgc	tctcaaagtg	300
atttacggaa	accacgaaga	taccgtgaga	cgtcagatct	gtagagagat	cgagatctta	360
agaagtgttg	atcatccaaa	cgttgtgaaa	tgtcacgata	tgtttgatca	taacggtgag	420
atccaggttt	tgcttgagtt	tatggatcaa	ggatctcttg	aaggagctca	tatatggcaa	480
gaacaggaat	tagctgatct	ctctcgtcag	attcttagtg	gattagctta	tcttcacgt	540
cgtcatatcg	ttcatcgtga	tatcaaacct	tcgaatctcc	ttataaactc	agctaaaaat	600
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<211> 348

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<213> Arabidopsis thaliana

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      20           25           30
Val Ala Leu Ala Val Pro Leu Pro Leu Pro Pro Ser Ser Ser Ser
      35           40           45
Ser Ala Pro Ala Ser Ser Ser Ala Ile Ser Thr Asn Ile Ser Ala Ala
      50           55           60
Lys Ser Leu Ser Glu Leu Glu Arg Val Asn Arg Ile Gly Ser Gly Ala
65           70           75           80
Gly Gly Thr Val Tyr Lys Val Ile His Thr Pro Thr Ser Arg Pro Phe
      85           90           95
Ala Leu Lys Val Ile Tyr Gly Asn His Glu Asp Thr Val Arg Arg Gln
      100          105          110
Ile Cys Arg Glu Ile Glu Ile Leu Arg Ser Val Asp His Pro Asn Val
      115          120          125
Val Lys Cys His Asp Met Phe Asp His Asn Gly Glu Ile Gln Val Leu
      130          135          140
Leu Glu Phe Met Asp Gln Gly Ser Leu Glu Gly Ala His Ile Trp Gln
      145          150          155          160
Glu Gln Glu Leu Ala Asp Leu Ser Arg Gln Ile Leu Ser Gly Leu Ala
      165          170          175
Tyr Leu His Arg Arg His Ile Val His Arg Asp Ile Lys Pro Ser Asn
      180          185          190
Leu Leu Ile Asn Ser Ala Lys Asn Val Lys Ile Ala Asp Phe Gly Val
      195          200          205
Ser Arg Ile Leu Ala Gln Thr Met Asp Pro Cys Asn Ser Ser Val Gly
      210          215          220
Thr Ile Ala Tyr Met Ser Pro Glu Arg Ile Asn Thr Asp Leu Asn His
      225          230          235          240
Gly Arg Tyr Asp Gly Tyr Ala Gly Asp Val Trp Ser Leu Gly Val Ser
      245          250          255
Ile Leu Glu Phe Tyr Leu Gly Arg Phe Pro Phe Ala Val Ser Arg Gln
      260          265          270
Gly Asp Trp Ala Ser Leu Met Cys Ala Ile Cys Met Ser Gln Pro Pro
      275          280          285
Glu Ala Pro Ala Thr Ala Ser Gln Glu Phe Arg His Phe Val Ser Cys
      290          295          300
Cys Leu Gln Ser Asp Pro Pro Lys Arg Trp Ser Ala Gln Gln Leu Leu
      305          310          315          320
Gln His Pro Phe Ile Leu Lys Ala Thr Gly Gly Pro Asn Leu Arg Gln
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 35 40 45
 Ser Ala Pro Ala Ser Ser Ser Ala Ile Ser Thr Asn Ile Ser Ala Ala
 50 55 60
 Lys Ser Leu Ser Glu Leu Glu Arg Val Asn Arg Ile Gly Ser Gly Ala
 65 70 75 80
 Gly Gly Thr Val Tyr Lys Val Ile His Thr Pro Thr Ser Arg Pro Phe
 85 90 95
 Ala Leu Lys Val Ile Tyr Gly Asn His Glu Asp Thr Val Arg Arg Gln
 100 105 110
 Ile Cys Arg Glu Ile Glu Ile Leu Arg Ser Val Asp His Pro Asn Val
 115 120 125
 Val Lys Cys His Asp Met Phe Asp His Asn Gly Glu Ile Gln Val Leu

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Glu Gln Glu Leu Ala Asp Leu Ser Arg Gln Ile Leu Ser Gly Leu Ala
      165              170              175
Tyr Leu His Arg Arg His Ile Val His Arg Asp Ile Lys Pro Ser Asn
      180              185              190
Leu Leu Ile Asn Ser Ala Lys Asn Val Lys Ile Ala Asp Phe Gly Val
      195              200              205
Ser Arg Ile Leu Ala Gln Glu Met Asp Pro Cys Asn Glu Ser Val Gly
      210              215              220
Thr Ile Ala Tyr Met Ser Pro Glu Arg Ile Asn Thr Asp Leu Asn His
225              230              235              240
Gly Arg Tyr Asp Gly Tyr Ala Gly Asp Val Trp Ser Leu Gly Val Ser
      245              250              255
Ile Leu Glu Phe Tyr Leu Gly Arg Phe Pro Phe Ala Val Ser Arg Gln
      260              265              270
Gly Asp Trp Ala Ser Leu Met Cys Ala Ile Cys Met Ser Gln Pro Pro
      275              280              285
Glu Ala Pro Ala Thr Ala Ser Gln Glu Phe Arg His Phe Val Ser Cys
      290              295              300
Cys Leu Gln Ser Asp Pro Pro Lys Arg Trp Ser Ala Gln Gln Leu Leu
305              310              315              320
Gln His Pro Phe Ile Leu Lys Ala Thr Gly Gly Pro Asn Leu Arg Gln
      325              330              335
Met Leu Pro Pro Pro Arg Pro Leu Pro Ser Ala Ser
      340              345

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<210> 13
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      35      40      45
Gly Gly Ser Ser Gly Ser Ala Pro Ser Ser Gly Gly Ser Ala Ser Ser
      50      55      60
Thr Asn Thr Asn Ser Ser Ile Glu Ala Lys Asn Tyr Ser Asp Leu Val
65      70      75      80
Arg Gly Asn Arg Ile Gly Ser Gly Ala Gly Gly Thr Val Tyr Lys Val
      85      90      95
Ile His Arg Pro Ser Ser Arg Leu Tyr Ala Leu Lys Val Ile Tyr Gly
      100      105      110
Asn His Glu Glu Thr Val Arg Arg Gln Ile Cys Arg Glu Ile Glu Ile
      115      120      125
Leu Arg Asp Val Asn His Pro Asn Val Val Lys Cys His Glu Met Phe
      130      135      140
Asp Gln Asn Gly Glu Ile Gln Val Leu Leu Glu Phe Met Asp Lys Gly
145      150      155      160
Ser Leu Glu Gly Ala His Val Trp Lys Glu Gln Gln Leu Ala Asp Leu
      165      170      175
Ser Arg Gln Ile Leu Ser Gly Leu Ala Tyr Leu His Ser Arg His Ile

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Val His Arg Asp Ile Lys Pro Ser Asn Leu Leu Ile Asn Ser Ala Lys
      195      200      205
Asn Val Lys Ile Ala Asp Phe Gly Val Ser Arg Ile Leu Ala Gln Thr
      210      215      220
Met Asp Pro Cys Asn Ser Ser Val Gly Thr Ile Ala Tyr Met Ser Pro
      225      230      235      240
Glu Arg Ile Asn Thr Asp Leu Asn Gln Gly Lys Tyr Asp Gly Tyr Ala
      245      250      255
Gly Asp Ile Trp Ser Leu Gly Val Ser Ile Leu Glu Phe Tyr Leu Gly
      260      265      270
Arg Phe Pro Phe Pro Val Ser Arg Gln Gly Asp Trp Ala Ser Leu Met
      275      280      285
Cys Ala Ile Cys Met Ser Gln Pro Pro Glu Ala Pro Ala Thr Ala Ser
      290      295      300
Pro Glu Phe Arg His Phe Ile Ser Cys Cys Leu Gln Arg Glu Pro Gly
      305      310      315      320
Lys Arg Arg Ser Ala Met Gln Leu Leu Gln His Pro Phe Ile Leu Arg
      325      330      335
Ala Ser Pro Ser Gln Asn Arg Ser Pro Gln Asn Leu His Gln Leu Leu
      340      345      350
Pro Pro Pro Arg Pro Leu Ser Ser Ser Ser Pro Thr Thr
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<211> 348
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<213> Arabidopsis thaliana

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      20      25      30
Val Ala Leu Ala Val Pro Leu Pro Leu Pro Pro Ser Ser Ser
      35      40      45
Ser Ala Pro Ala Ser Ser Ser Ala Ile Ser Thr Asn Ile Ser Ala Ala
      50      55      60
Lys Ser Leu Ser Glu Leu Glu Arg Val Asn Arg Ile Gly Ser Gly Ala
      65      70      75      80
Gly Gly Thr Val Tyr Lys Val Ile His Thr Pro Thr Ser Arg Pro Phe
      85      90      95
Ala Leu Lys Val Ile Tyr Gly Asn His Glu Asp Thr Val Arg Arg Gln
      100      105      110
Ile Cys Arg Glu Ile Glu Ile Leu Arg Ser Val Asp His Pro Asn Val
      115      120      125
Val Lys Cys His Asp Met Phe Asp His Asn Gly Glu Ile Gln Val Leu
      130      135      140
Leu Glu Phe Met Asp Gln Gly Ser Leu Glu Gly Ala His Ile Trp Gln
      145      150      155      160
Glu Gln Glu Leu Ala Asp Leu Ser Arg Gln Ile Leu Ser Gly Leu Ala
      165      170      175
Tyr Leu His Arg Arg His Ile Val His Arg Asp Ile Lys Pro Ser Asn
      180      185      190
Leu Leu Ile Asn Ser Ala Lys Asn Val Lys Ile Ala Asp Phe Gly Val
      195      200      205
Ser Arg Ile Leu Ala Gln Thr Met Asp Pro Cys Asn Ser Ser Val Gly

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210	215	220
Thr Ile Ala Tyr Met Ser Pro Glu Arg Ile Asn Thr Asp Leu Asn His		
225	230	235
Gly Arg Tyr Asp Gly Tyr Ala Gly Asp Val Trp Ser Leu Gly Val Ser		240
	245	250
Ile Leu Glu Phe Tyr Leu Gly Arg Phe Pro Phe Ala Val Ser Arg Gln		255
	260	265
Gly Asp Trp Ala Ser Leu Met Cys Ala Ile Cys Met Ser Gln Pro Pro		270
	275	280
Glu Ala Pro Ala Thr Ala Ser Gln Glu Phe Arg His Phe Val Ser Cys		285
	290	295
Cys Leu Gln Ser Asp Pro Pro Lys Arg Trp Ser Ala Gln Gln Leu Leu		300
305	310	315
Gln His Pro Phe Ile Leu Lys Ala Thr Gly Gly Pro Asn Leu Arg Gln		320
	325	330
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	340	345

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